

February 16, 2017

Defense Technical Information Center  
8725 John J Kingman Road Ste 0944  
Fort Belvoir, VA 22060-6218

**Re: OSA Imaging and Applied Optics Congress Support (Award No. N00014-16-1-2757)**

Please find enclosed proceedings with form SF298 for the 2016 OSA Imaging and Applied Optics Congress Support grant, award No. N00014-16-1-2757.

If you have any questions regarding the submission of this report, please contact our Grants Manager, Ewelina Osinska, at (202) 416-1934 or [eosinska@osa.org](mailto:eosinska@osa.org).

Sincerely,



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Deputy Senior Director  
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# REPORT DOCUMENTATION PAGE

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14. ABSTRACT The 2016 OSA Imaging and Applied Optics Congress was a four-day meeting that encompassed the latest advances in computational imaging research, emphasizing integration of opto-electric measurement and computational processing as well as imaging system design and components, imaging modalities and systems, and applications of military, industrial, medical and consumer imaging. The Congress featured eight (8) meetings including Imaging Systems and Applications (IS) and Computational Optical Sensing and Imaging (COSI). The meetings exposed attendees to in-depth learning of optical sensing and imaging and their applications from internationally recognized academic and industry leaders in the field.					
15. SUBJECT TERMS imaging, imaging systems, computational sensing, compressive sensing, tomographic imaging, light-field sensing, digital holography, SAR, phase retrieval, computational spectroscopy, blind deconvolution and phase diversity, point spread function engineering, digital/optical super resolution, light gathering optics, image sensor architectures and technology,					
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## CONFERENCE PROCEEDINGS

### 2016 OSA Imaging and Applied Optics Congress Support

#### Report Submitted to:

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Arlington, Virginia 22203-1995

#### Submitting Institute:

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2010 Massachusetts Ave NW  
Washington, D.C. 20036-1023  
IRS NO. 53-0259696

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## **FOREWORD**

The Optical Society of America (OSA) greatly appreciates the grant in the amount of \$10,000 from the Office of Naval Research (ONR) for the support of Imaging Systems and Applications (IS) and Computational Optical Sensing and Imaging (COSI) topical meetings within the OSA Imaging and Applied Optics Congress, which was held in Heidelberg, Germany on 25-28 July 2016.

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## ABSTRACT

The 2016 OSA Imaging and Applied Optics Congress was a four-day meeting that encompassed the latest advances in computational imaging research, emphasizing integration of opto-electric measurement and computational processing as well as imaging system design and components, imaging modalities and systems, and applications of military, industrial, medical and consumer imaging. The Congress featured eight (8) Topical meetings including Imaging Systems and Applications (IS) and Computational Optical Sensing and Imaging (COSI) that were supported by this grant. The meetings exposed attendees to in-depth learning of optical sensing and imaging and their applications from internationally recognized academic and industry leaders in the field.

The goal of this Congress was to present topics that range from theoretical to experimental demonstration and verification of the latest advances in imaging systems and their applications. COSI covered subject matter in fundamental physics, numerical methods and physical hardware that has led to significant improvements in the fields of imaging and sensing for medical, defense, homeland security, inspection and testing applications, and IS highlighted the leading-edge use of imaging systems in microscopy, invasive and non-invasive surgery, remote sensing, astronomical observations and imaging from nearby planets to outer space, digital cinematography capture and projection, computational photography and consumer imaging.

The COSI and IS meetings convened 155 attendees, hosted 39 invited speakers and featured 73 contributed oral presentations, and 37 poster presentations.

## GOALS

1. Showcase the latest advances and identify future trends in the field of imaging systems and applications. To enable this, conference chairs and committee members in consultation with industry leaders create a program that attracts distinguished experts and fosters in-depth exploration of topics, enables open dialog, and facilitates one-on-one interaction.
2. Gain recognition and share discoveries with colleagues, luminaries and industry leaders. Peer-reviewed presentations ensure high-quality presentations on important, timely and emerging topics. Accepted papers are published in OSA Publishing's Digital Library and indexed in Ei Compendex and Scopus.
3. Connect with others, meet with colleagues and thought leaders while making new contacts and forging new collaborative partnerships. The meeting is structured to maximize networking opportunities across related disciplines.
4. Engage with the industry and offer opportunities to meet with exhibitors. Participants can hear about the latest products and services, but more importantly, learn about entrepreneurial opportunities and how scientific innovations translate to the market.



## ACCOMPLISHMENTS

The Imaging Congress was a four-day meeting that exposed attendees to in-depth learning of optical sensing and imaging and their applications from internationally recognized academic and industry leaders in the field. The scope included all aspects of the field. Computational sensing and imaging applications span from fundamental science to medical, security, and defense industry applications. COSI encompasses the latest advances in computational imaging research, emphasizing integration of opto-electric measurement and computational processing. Representative topics include compressive sensing, tomographic imaging, light-field sensing, digital holography, SAR, phase retrieval, computational spectroscopy, blind deconvolution and phase diversity, point spread function engineering, and digital/optical super resolution. IS brought together experts from many different scientific and engineering disciplines who contribute to the design and integration of optics, sensors, digital processing and displays in imaging systems. IS captured the state-of-the-art in unique light gathering optics, image sensor architectures and technology, on and off chip digital image processing, and methods for compression and transmission. The meeting highlighted the leading-edge use of imaging systems in microscopy, invasive and non-invasive surgery, remote sensing, astronomical observations and imaging from nearby planets to outer space, digital cinematography capture and projection, computational photography and consumer imaging

The Computational Optical Sensing and Imaging (COSI) meeting consisted of topics that ranged from theoretical to experimental demonstration and verification of the latest advances in computational imaging research. This meeting covered subject matter in fundamental physics, numerical methods and physical hardware that has led to significant improvements in the fields of imaging and sensing for medical, defense, homeland security, inspection and testing applications. In 2016, the program committee prepared a program of 20 invited speakers and 43 contributed oral presentations, as well as 27 poster presentations. Also, OSA piloted a new program for COSI poster presenters. This program brought a multimedia presence to enhance the poster session by allowing presenters to submit 3 minute videos of their research. These videos can be found on the COSI website, [osa.org/cosi](http://osa.org/cosi), and also select submissions were shown at the end of related oral presentations sessions.

Imaging Systems and Applications (IS) was an “all-encompassing” topical meeting specializing in imaging system design and components, imaging modalities and systems, and applications of military, industrial, medical and consumer imaging. Its aim was to highlight how different materials, components, and processing combine to create imaging systems and determine their performance. Invited speakers from the military, academic, and commercial imaging sectors addressed the current status and future of imaging technologies and capabilities in their organizations. The conference included keynote speaker Josef Bille, University of Heidelberg, Germany, 19 invited speakers, 30 contributed oral presentations, and 10 poster presentations.

The program consisted of plenary and technical sessions, networking events, professional development programs, poster presentations and research sharing. The curriculum structure allowed for student education, networking, and opportunities for students to interact with lecturers to enhance professional development.



Please see Appendix A. for the detailed schedule.

### Significant Results

1. 664 individuals attended the Congress. COSI and IS attracted 155 participants.
2. 56 students attended COSI and IS
3. COSI and IS hosted 39 invited speakers who presented a variety of topics over the course of four days.
4. COSI and IS featured 73 contributed presentations, and 37 poster presentations.
5. There were 13 participating companies in the Congress.
6. COSI and IS attendees represented 26 countries.
7. COSI and IS provided diversity in student enrollment, including 20 female students.
8. OSA provided the staffing and support for the planning and execution of the program throughout the whole performance period.
9. The ONR grant funds were used to cover travel and registration costs for 20 participants. A portion of the funds was also used for grant management and processing.

### Grant Funds Allocation

1. Participants Support			\$7,486
Indranil	Sinharoy	Southern Methodist University	\$500
Elisabeth	Shanblatt	University of Colorado at Boulder	\$500
Anna	Hilsmann	Fraunhofer Heinrich Hertz Institute	\$269
Jean-Christophe	Olivo-Marin	Institut Pasteur	\$269
Chrysanteh	Preza	University of Memphis	\$670
Adrian	Stern	Ben Gurion University of the Negev	\$269
Andreas	Velten	Laboratory for Optical and Computational Instrumentation	\$269
Gili	Dardikman	Tel Aviv University	\$500
Maksim Aleksandrovich	Volynskii	ITMO University	\$500
Josef	Bille	Ruprecht-Karls-Universität Heidelberg	\$670
Martin	Wegener	Karlsruher Institut für Technologie	\$670

Kristina	Irsch	Johns Hopkins University	\$560
Andreas	Erdmann	Fraunhofer Institute for Integrated Systems and Device Technology IISB	\$230
Moti	Fridman	Bar Ilan University	\$230
Amal	Ghosh	eMagin Corporation	\$230
Robert	Henderson	University of Edinburgh	\$230
Achuta	Kadambi	Massachusetts Institute of Technology	\$230
John	MacEachin	Sierra Nevada Corporation	\$230
Pantazis	Mouroulis	Jet Propulsion Laboratory	\$230
Markus	Rossi	Heptagon Advanced Micro-Optics Pte Ltd	\$230
<b>2. Program Management Support</b>			<b>\$2,514</b>

## Invited Speakers and their Presentations

### COSI Invited Speakers and their Presentations

- Christoph Garbe, Ctr Sci Computing, Univ Heidelberg, Germany, Light Field Imaging for Accurate and Realistic Capture of Complex Objects, Invited
- Sylvain Gigan, Laboratoire Kastler-Brossel, France, Compressive Sensing and Optical Computing Thanks to Multiple Scattering, Invited
- Marc Guillon, CNRS UMR8250 Université Paris Descartes, France, The Use of Saturated Negative Speckles for Imaging Through a Scattering Sample, Invited
- Alois Herkommer, Universität Stuttgart, Germany, Optical Design Tools for Computational Imaging Systems, Invited
- Anna Hilsmann, Fraunhofer Heinrich Hertz Institute, Germany, Towards Image-based Modelling, Editing and Rendering, Invited
- Ivo Ihrke, INRIA, Germany, Advances in Non-Invasive Full-State Fluid Capture, Invited
- Bahram Javidi, University of Connecticut, United States, Automated Disease Identification Using Computational 3D Optical Sensing and Imaging Systems, Invited
- Ori Katz, Hebrew University of Jerusalem, Israel, Imaging with Scattered Light, Invited
- Damien Kelly, Technical University of Ilmenau, Germany, Convergence Properties of Temporal Speckle Measurements, Invited
- Manuel Martinez-Corral, Universitat de Valencia, Spain, Fast Axial Scanning in 3D Imaging, Invited



- Allard Mosk, Universiteit Utrecht, Netherlands, Range of Imaging and Focusing through Scattering Media, Invited
- Jean-Christophe Olivo-Marin, Institut Pasteur, France, Mathematical Microscopy, Invited
- Demetri Psaltis, Ecole Polytechnique Federale de Lausanne, Switzerland, Learning From Examples in Optical Imaging, Invited
- Kari Pulli, Intel Corporation, Computational Photography, Invited
- Dirk Robinson, Skybox Imaging, Computational Imaging Approaches, Challenges and R&D Opportunity in the Earth-imaging Remote Sensing Industry, Invited
- Ariel Schwarz, University of Connecticut, Time Multiplexed Pinholes Array based Imaging in the Gamma and X-ray Spectral Range, Invited
- Anne Sentenac, Fresnel Institut, France, Tomographic Diffraction Microscopy: Improving Marker-free Microscopy Resolution Using Holograms and Numerical Reconstructions, Invited
- Adrian Stern, Ben Gurion University of the Negev, Israel, Compressive Gigavoxel Spectral Imaging, Invited
- Andreas Velten, University of Wisconsin-Madison, United States, Non-line-of-sight Imaging Using Active Light Fields, Invited
- Markus Rossi, Heptagon, Switzerland, Miniaturized 3D Imaging and Sensing Modules, Keynote

#### IS Invited Speakers and their Presentations

- Andreas Erdmann, Fraunhofer IISB, Germany, Resolution Enhancements for Semiconductor Lithography: A Computational Perspective, Invited
- Jorg Fischer, New Ophthalmic Imaging Procedures, Invited
- Boyd Fowler, Omnivision Technologies, Highlights of 2015 International Image Sensor Workshop, Invited
- Moti Fridman, Bar Ilan University, Israel, Temporal Lens Array, Invited
- Amal Ghosh, eMagin Corp., United States, Recent Advances in High Brightness OLED Microdisplays, Invited
- Robert Henderson, University of Edinburgh, United Kingdom, Avalanche-mode High Frame Rate, Low Light CMOS Single Photon Image Sensors, Invited
- Bahram Javidi, University of Connecticut, United States, Advances in 3D Imaging with Applications to Displays, Computational Imaging, Optical Security, and Healthcare, Invited
- Achuta Kadambi, MIT, United States, Macroscopic Interferometry with Electrons, Instead of Photons, Invited
- Ori Katz, Hebrew University of Jerusalem, Israel, To be determined, Invited
- Hendrik Lensch, Eberhard Karls University Tübingen, Germany, To be determined, Invited
- Gao Liang, University of Illinois Urbana-Champaign, United States, Compressed Ultrafast Photography: Redefining the Limit of Passive Ultrafast Imaging, Invited
- John MacEachin, Sierra Nevada Corporation, United States, Optical Design Considerations for Wide Area Imaging Systems, Invited



- Guy Meynants, CMOSIS, Belgium, High Resolution and Large Format CMOS Image Sensors for Professional Applications, Invited
- Pantazis Mouroulis, Jet Propulsion Laboratory, United States, Imaging Spectroscopy Technologies and Applications, Invited
- Demetri Psaltis, Ecole Polytechnique Federale de Lausanne, Switzerland, The Memory Effect in Multicore Fibers, Invited
- Eldon Puckrin, Defence R&D Canada, Canada, Developments in Thermal HSI Sensing at Defence R&D Canada - Valcartier Research Centre, Invited
- Grover Swartzlander, Rochester Institute of Technology, United States, Imaging Systems Optical Vortices, Invited
- Martin Wegener, Karlsruher Institut für Technologie, Germany, To be determined, Invited
- Josef Bille, Ruprecht-Karls-Universität Heidelberg, Adaptive Optics in Vision Science and Ophthalmology, Keynote

### **Other Achievements**

1. Plenary Sessions:
  - Trends, Advances and Prospects of Optical Imaging in Germany and Beyond  
Michael Totzeck, Fellow, Corporate Research and Technology, Carl Zeiss AG, Germany
  - Coherent X-ray Imaging  
Keith Nugent, Deputy vice-Chancellor (Research), La Trobe University, Australia
  - Fifty Years of Image Science  
Chris Dainty, Professorial Research Associate, University College London, UK
2. AO & IS Joint Keynote  
Adaptive Optics in Vision Science and Ophthalmology  
Josef Bille, University of Heidelberg, Germany
3. AIO and COSI Keynote  
Miniaturized 3D Imaging and Sensing Modules  
Markus Rossi, Chief Innovation Officer, Heptagon Advanced MicroOptics Pte Ltd, Switzerland

### **Training and Professional Development Opportunities**

1. The Keys to a Successful Career in Optics; Student & Young Professional Career Panel  
The OSA Foundation invited the OSA Members-only career panel for students and young professionals. Hosted by 2016 OSA Ambassadors Aline Dinkelaker and Bettina Heim, the panel featured plenary speakers Chris Dainty, Keith Nugent and Michel Totzeck who discussed career options, the current job market and new technologies to look out for that might be exciting to work with in the future with participants.

2. Poster Sessions  
Posters are an integral part of the technical program and offer a unique networking opportunity, where presenters can discuss their results one-to-one with interested parties. The Meeting featured two poster sessions.

3. OSA Holography and Diffractive Optics Technical Group Networking Event  
Attendees were invited to the Holography and Diffractive Optics Technical Group for a chance

to learn more about this group while connecting with their peers and colleagues in the community. Yunlong Sheng, who serves as the technical group's chair, and Pascal Picart, who serves as vice chair, shared their vision for the technical group and sought attendees' input on future activities and events.

4. OSA 100th Celebration: Light the Future with Joseph Izatt and Bernard Kress  
Attendees had a chance to celebrate OSA's 100th Anniversary! OSA's Imaging and Applied Optics Light The Future speaker series featured Joseph Izatt, professor of Biophotonics, Duke University, Lighting up the Future of Medical Imaging and Image-guided Therapy and OSA Fellow Bernard Kress, Microsoft, USA, The Light Years Ahead: How Today's Promising Augmented and Virtual Reality Markets Help Shape New Optics Frontiers.

## DISSEMINATION

The results of the COSI and IS meetings have been disseminated to communities of interest through the following channels:

- OSA website (COSI Website [http://www.osa.org/en-us/meetings/osa\\_meeting\\_archives/2016/computational\\_optical\\_sensing\\_and\\_imaging/](http://www.osa.org/en-us/meetings/osa_meeting_archives/2016/computational_optical_sensing_and_imaging/); IS Website [http://www.osa.org/en-us/meetings/osa\\_meeting\\_archives/2016/imaging\\_systems\\_and\\_applications/](http://www.osa.org/en-us/meetings/osa_meeting_archives/2016/imaging_systems_and_applications/))
- OSA Publishing's Digital Library and indexed in Ei Compendex and Scopus (COSI Proceedings <https://www.osapublishing.org/conference.cfm?meetingid=15&yr=2016>; IS Proceedings <https://www.osapublishing.org/conference.cfm?meetingid=126&yr=2016>)
- Program Book ([http://www.osa.org/osaorg/media/osa.media/Meetings/Archives/2016/2016\\_Imaging\\_Program.pdf](http://www.osa.org/osaorg/media/osa.media/Meetings/Archives/2016/2016_Imaging_Program.pdf))
- OSA Blog ([http://www.osa.org/en-us/the\\_optical\\_society\\_blog/](http://www.osa.org/en-us/the_optical_society_blog/)).



## APPENDIX

### Appendix A. Schedule at a Glance

	Sunday, 24 July	Monday, 25 July	Tuesday, 26 July	Wednesday, 27 July	Thursday, 28 July
	Registration 13:30-17:00	Registration 7:30-18:30	Registration 8:00-18:00	Registration 8:00-17:30	Registration 8:30-17:30
08:00					
09:00		Plenary Session (9:00 - 11:00)	Technical Sessions (9:00 - 10:30)	Technical Sessions (9:00 - 10:30)	Technical Sessions (9:00 - 10:30)
10:00					
11:00		Coffee Break/Exhibits	Coffee Break/Exhibits	Coffee Break/Exhibits	Coffee Break/Exhibits
12:00		Technical Sessions (11:30 - 12:30)	Technical Sessions (11:30 - 12:30)	Technical Sessions (11:30 - 12:30)	Technical Sessions (11:30 - 12:30)
13:00		Lunch 12:30 - 14:00	Poster Session with Lunch 12:30 - 14:00	Lunch 12:30 - 14:00	Lunch 12:30 - 14:00
14:00	Registration Open	Technical Sessions (14:00 - 16:00)	Free Afternoon (14:00 - 16:30)	Technical Sessions (14:00 - 15:30)	Technical Sessions (14:00 - 16:00)
15:00					
16:00		Beverage Break /Exhibits		Poster Session & Exhibits w/Beverage Break & Snacks (15:30 - 17:00)	Beverage Break/Exhibits
17:00		Technical Sessions (17:00 - 18:00)	Technical Session (16:30 - 18:00)		
18:00			OSA Centennial: Light the Future Event (18:00 - 19:30)	Technical Sessions (17:00 - 19:30)	Technical Session (17:00 - 18:30)
19:00		Conference Reception River Cruise Ticket Required	Followed by Reception		
20:00					

### Appendix B. Conference Publications

#### COSI Conference Publications

A. Schwarz, A. Shemer, R. Bar-Shalom, H. Avraham, N. ozana, H. Pinhas, and Z. Zalevsky, "Time Multiplexed Pinholes Array Based Imaging in the Gamma and X-ray Spectral Range," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM2B.1.

N. Han, S. Cho, A. Atabaki, E. Ye, W. Herrington, and R. Ram, "Non-paraxial Talbot Effect for Building Compact Spectrometers," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM2B.2.

A. Kamshilin, I. Sidorov, M. Volynsky, and O. Mamontov, "Video-Based Measurements of Blood Pulsations Delay in Human Faces," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM2B.3.

J. Olivo-Marin, "Mathematical Microscopy," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM3D.1.

M. Martinez-Corral, A. Doblas, E. Sánchez-Ortiga, G. Saavedra, and Y. Huang, "Fast Axial scanning in 3D imaging," in Imaging and Applied Optics 2016, OSA Technical Digest (online)



(Optical Society of America, 2016), paper CM3D.2.

S. Ghosh and C. Preza, "Block-Based Restoration Method for Wide-field Microscopy of Samples with Variable Refractive Index," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM3D.3.

J. McNally, S. Rehbein, C. Pratsch, S. Werner, P. guttmann, and G. Schneider, "3D PSF Measurement for a Soft X-ray Microscope and Comparison to Theory," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM3D.4.

O. Wagner, M. Schultz, Y. Ramon, E. Sloutskin, and Z. Zalevsky, "Active-scan linear-optics nanoscopy using optically trapped particles," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM3D.5.

D. Feldkhun and K. Wagner, "Afocal 3D Fluorescence Microscopy Using F-BASIS," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM3D.6.

B. Javidi, A. Anand, I. Moon, E. Watanabe, and A. Stern, "Automated Disease Identification using computational 3D Optical Sensing and Imaging Systems," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM4D.1.

M. Guillon, "The Use of Saturated Negative Speckles for Imaging Through a Scattering Sample," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM4D.2.

D. Kelly, "Convergence properties of temporal speckle measurements," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CM4D.3.

U. Kamilov, I. Papadopoulos, M. Hashemi, A. Goy, c. vonesch, M. Unser, and D. Psaltis, "Learning From Examples in Optical Imaging," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT1D.1.

A. Sentenac, P. Chaumet, K. Belkebir, H. Giovannini, G. Maire, A. Talneau, T. Zhang, C. Godhavarti, E. Mudry, and J. Girard, "Tomographic Diffraction Microscopy : Improving Marker-free Microscopy Resolution Using Holograms and Numerical Reconstructions," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT1D.2.

N. Meitav, E. Ribak, and S. Shoham, "Microscopic PSF Estimation and Resolution Enhancement by Speckle Pattern Illumination," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT1D.3.

Z. Phillips, M. Chen, and L. Waller, "Single-Shot Quantitative Phase and Amplitude Retrieval Using Color-Multiplexed Differential Phase Contrast Microscopy," in Imaging and Applied

Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT1D.4.

P. Sidorenko, E. Pauwels, S. Sabach, Y. Eldar, M. Segev, and O. Cohen, "Towards Ultrafast Subwavelength Microscopy," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT2D.1.

P. Konda, J. Taylor, and A. Harvey, "Calibration and Aberration Correction in Multi-Aperture Fourier Ptychography," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT2D.2.

R. Eckert, L. Tian, and L. Waller, "Algorithmic Self-calibration of Illumination Angles in Fourier Ptychographic Microscopy," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT2D.3.

Y. Zhou, J. Wu, Z. Bian, G. Zheng, and Q. Dai, "Wavelength Multiplexed Fourier Ptychographic Microscopy," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT2D.4.

E. Shanblatt, C. Porter, D. Gardner, G. Mancini, R. Karl Jr., M. Tanksalvala, C. Bevis, V. Vartanian, H. Kapteyn, M. Murnane, and D. Adams, "Quantitative Chemically-Specific Coherent Diffractive Imaging of Reactions and Diffusion at Buried Interfaces using a Tabletop EUV Nanoscope," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT4C.1.

G. Dardikman, M. Habaza, L. Waller, and N. Shaked, "GPU-Based Real-Time Processing of 3-D Refractive Index Maps of Biological Cells from Tomographic Phase Microscopy," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT4C.2.

W. Farriss, T. Malhotra, A. Vamivakas, and J. Fienup, "Phase Retrieval in Generalized Two-Path Interferometry," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT4C.3.

D. Marx and B. Kern, "Phase Retrieval Implementation for the WFIRST Coronagraph Development Testbed," in Imaging and Applied Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper CT4C.4.

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## **Appendix C. List of Committee Members**

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